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Original Research Article

The Role of Health Locus of Control in Compliance among Type 2 Diabetic Patients

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ABSTRACT

The diabetes regimen is extremely complex and requires life-long behavioral modifications on the part of patient, to manage this disease appropriately. HLC help us understand the factors that influence a person's attitudes affected compliance to a medical regimen. It influences a range of illness coping behaviors and outcomes among people experiencing chronic disease. The purpose of the present study is to find the relation between HLC and compliance to treatment regimen among type 2 diabetic patients by administering a MHLC and SDSCA questionnaire. The questionnaires consist of 18 and 15 items that require a response on six point and five point likert- type scales respectively. Type 2 diabetic patients aged 30-60 years, with no comorbidity and minimum of six months diagnosis history of diabetes from Jawaharlal Nehru Medical College were selected. The results revealed that HLC emerged as a good predictor of compliance as it contributed 17.5 percent of variance to the compliance. Data also showed that patients having high internal and doctors HLC and less chance HLC have more control over their diabetes shown by lesser HbA1c level. The Pearson correlation showed that Internal HLC was significantly positively correlated with diet ($r = .193$, $p < .01$) and exercise ($r = .149$, $p < .05$) compliance, Doctors HLC was significantly positively correlated with diet ($r = .297$, $p < .01$) and medication ($r = .229$, $p < .01$) compliance and Chance HLC negatively correlated with diet ($r = -.212$, $p < .01$) and exercise ($r = .317$, $p < .01$) compliance.

Key words: Health Locus of Control (HLC), Diabetes, Compliance.

INTRODUCTION

The diabetes is a developing disease and required a lifelong behavioral modification by the patients for its management. Diabetes regimen is extremely complex and it is generally seems that patients with a more complex regimen is less likely to be compliant than patients with a less demanding regimen. [1] However it is vital that individuals with diabetes should follow a strict treatment regimen in order to maintain and control over their blood glucose level. Diabetic regimen includes maintaining a proper diet, engaging in regular physical activity or exercise (20-30) minutes of brisk walking), blood glucose monitoring and taking recommended medications. The high incidence of complications in diabetic patients indicates that compliance to diabetes regimen is a prominent problem. The health locus of control theory is used to measure compliance behavior to diabetes regimen in many studies. [1] For instance Leventhal and associates [2] in their self-regulatory model of illness behavior, suggested that health locus of control is an important factor which effect a range of illness coping behaviors and outcomes among patients. Internal health locus of control refers to the extent to

which individuals believe that they can control events that affect them and people having external locus of control believe that their fate is determined largely by chance or by other persons and not by their own actions and they may less likely to adhere to therapy, because they feel that their actions may not appreciably affect outcomes. These individuals would attribute advances or declines in health to chance or external locus of control. The patients with internal locus of control may be more willing to follow treatment recommendations as they believe that the path of disease progression may be their control. This positive reinforcement behavior comes from the belief that hard work and ability leads to desired positive outcomes.

Significance of the study: Previous literature have been suggested the association of internal locus of control to good compliance and health outcomes and external locus of control with lower compliance to therapeutic regimen and higher HbA1c levels. [3-5] This study aimed at improving internal locus of control which may improve adherence to diabetes regimen because different diabetic patients differently attributes to the disease condition and interventional programs to enhance patient perceived locus of control and improve diabetes self-care behaviors and ultimately quality of life.

Objectives: The objective of the present study is to explore the relationship of Health Locus of Control with Diabetic Compliance and its effect on HbA1c level among type 2 Diabetes Mellitus patients.

MATERIALS AND METHODS

Sample: Only those patients, whose age ranges from 30 years to 60 years, was diagnosed with type 2 diabetes, with minimum of six months diagnosed history, without co-morbidity, and willing to participate in the study were the inclusion criteria for selecting the sample.

Locale: The study was carried out in the endocrinology section of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, on type 2 diabetic patients.

Questionnaire: The modified version of Summary of Diabetes Self-Care Activities [9] was employed to evaluate the compliance to treatment regimen among type 2 diabetic patients. Diabetes specific Multidimensional Health Locus of Control Scale [10] was used to assess the HLC.

Statistical analysis:

A statistical package for social sciences (SPSS) version 20 was used for the purpose of analysis. For sample characteristics, descriptive statistics such as Means and Standard Deviation were calculated. Pearson's Product Moment Correlation coefficients were calculated to find the simple correlations between health locus of control and compliance. Hierarchical regression analysis was used for test the exclusive contribution of HLC in diabetic compliance.

RESULTS

Demographic characteristics: Out of total 50.5% patients were males and 49.5% were females. Only 22% subjects were in early (31-40 years), 36% in middle (41-50 years) and 42% in late (51-60 years) age group. Most of the subjects were from upper middle class (50.5%), 24.5% were from lower middle, only 10.5% were from upper class and rest belong to lower SES. Majority of the patients were urban living (86%) and rest were rural people. The mean HbA1c of the sample was 8.09 % $\pm$ 1.73.

Table 1: Distribution of patients on Health locus of control scale and their mean HbA1c level

HLC dimensions	Percentage of Patients Mean HbA1c (SD)	
Internal HLC		
Less internal HLC	1.5%	9.0 (2.6)
Moderate internal HLC	45%	8.3 (1.84)
High internal HLC	53%	7.8 (1.58)
Chance HLC		
Less chance HLC	2.5%	6.5 (0.94)
Moderate chance HLC	51%	7.9 (1.55)
High chance HLC	46.5%	8.3 (1.85)
Doctors HLC		
Less doctors HLC	0.5%	6.8 (-)
High doctors HLC	99.5%	8.1 (1.73)
Others HLC		
Less others HLC	39%	8.2 (1.71)
High others HLC	61%	8.0 (1.74)

In table 1 the data revealed that only 1.5% patients had less internal HLC with a mean HbA1c of 9%. Patients having moderate internal HLC (45 percent) and high internal HLC (53 percent) had 8.3% and 7.8% of mean HbA1c level respectively. In the above table it is clear that those patients who have less internal HLC have higher HbA1c level than those having moderate to high internal HLC. In chance locus of control, only 2.5% patient had less, 51% had Moderate and 46.5% had high chance HLC with a mean HbA1c level of 6.5%, 7.9% and 8.3% respectively. It transparently showed that patients having less chance HLC had better glycemic control than those having high chance HLC.

Out of total, 99.5% patients had doctors HLC with a mean HbA1c of 8.1%. Only 39% patients reported of less other HLC and 61% have high others HLC with a mean Hba1c of 8.2% and 8% respectively.

Table2: Coefficients of Correlation between Health locus of control and Compliance

Compliance	Diet	Exercise	Glucose testing	Medication
Internal HLC	.193**	.149*	.038	-.059
Chance HLC	-.212**	-.317**	-.119	-.070
Doctors HLC	.297**	.110	.019	.229**
Others HLC	-.095	.038	.073	-.006

Correlation is significant at the 0.05* and 0.01** level (2-tailed).

Pearson's Correlation coefficient between compliance (diet, exercise, glucose testing and medication) and multidimensional health locus of control shows that Dietary and Exercise compliance was significantly positively correlated with internal HLC (r= .193, p < .01) and (r= .149, p < .05) respectively. It indicates that patients with higher internal locus of control follow more diet and exercise regimen. Dietary and exercise compliance was significantly negatively correlated with chance HLC (r= -.212, p < .01) and (r= -.317, p < .01) respectively. It means that patients with higher chance locus of control were less compliant to diet and exercise regimen and patients having less chance HLC were more biddable to diet and exercise regimen. Dietary and medication compliance was significantly positively correlated with doctors MHLC (r= .297, p <. 01) and (r= .229, p < .01) respectively, indicated that people having more doctor locus of control are more compliant to dietary and medication regimen. Others HLC was not found significant on any dimension of compliance.

Table 3: Hierarchical regression analysis for predicting Compliance among diabetic patients

Variable	Step 1	Step 2
	β	β
Constant	54.02***	60.095***
Gender	-.221*	-.192*
Age	.001	-.014
SES	.348***	.236**
Internal HLC		.202*
Chance HLC		-.403***
Doctors HLC		.162*
Others HLC		-.015
	R^2 = .102 $\triangle R^2$= .088 F Change= 7.394*** F= 7.394***	R^2 = .204 $\triangle R^2$= .175 F Change = 6.147*** F= 7.014***

*p<.05, **p<.01, ***p<.001

Table 3 shows a two-step Hierarchical Regression Analysis for predicting compliance as the criterion variable. In first step demographic variables were entered, the demographic variables accounted for 10.2% of the variance in diabetic compliance. Beta values showed that gender negatively (β= -.221, t= -2.920, p=.004) and SES (β=.348, t=4.603, p=.000) positively predicted compliance. It means that females and patients of high socioeconomic strata tend to be more compliant with treatment recommendations.

At second step, Health Locus of Control was entered. HLC added 17.5% of variance ($\triangle R^2$= .175, F =7.014, p<.001) to the variance accounted by the demographic variables. Values in the table 3 shows that Internal (β = .202, p< .05) and Doctors HLC (β =.162,p< .05) positively predicted, and Chance HLC (β=-.403) negatively predicted compliance at p value less than .001. It means that patients who have more internal and doctors HLC and less chance HLC were better complier of treatment regimen. Others Health locus of control was not found significant in predicting diabetic compliance.

DISCUSSION

Health locus of control emerged as a strong predictor of compliance. It significantly contributed 17.5% of variance to the diabetic compliance. Patients with high internal HLC were more willing to comply with the treatment recommendations as they believe that the disease progression may be controlled through their own ability and actions and they have less HbA1c level (HbA1c=7.8%) as compared to those who had low Internal (HbA1c=9%) and high Chance (HbA1c=8.3%) believes. On contrary, patients who believe that their fate or luck is predetermined largely by chance or by other persons and not by their own actions may less likely adhere to treatment regimen, because they feel that their actions may not appreciably affect outcomes [1] which may decreases compliance to diabetes regimen and ultimately poor glycemic control. The positive relation between internal locus of control and better compliance to diabetes regimen, and negative association between chance locus of control and poor diabetic compliance was found by many researchers. [6,7] Many studies also suggested that men attributed things more to internal locus of control while women attributed things more to chance locus of control. The chance locus of control increased by age and decreased by education, while the internal locus of control increased by education level. [6]

The findings on health locus of control concurred with many previous researches. For instance Macrodimitris and colleagues [4] stated that internal locus of control was negatively related to HbA1c levels. Further it is not supported by Surge nor [3] that participants who had optimal HbA1c levels, had significantly higher levels of sense of control in all three domains than those with poor HbA1c levels. Other researchers too found the similar results between the three subscales of the MHLC and overall compliance measures. [8] Hence, it was clearly indicated that Locus of control has a positive relationship with the compliance among diabetic patients because it influences a range of disease coping behaviors and outcomes among people experiencing illness. [8]

CONCLUSION

A patient with high perceived control may have better health because he or she is more likely to take health-enhancing actions or risk reduction behaviors. This would suggest that enhancement of an individual perceived control over his or her health may lead to improved health outcomes in terms of HbA1c level. In particular, diabetic patient may comply more closely to their regimen if they have more internal and less chance locus of control.

REFERENCES

1. Paraskevi Theofilou and Aymara Reyes Saborit. (2012). Health Locus of Control and Diabetes Adherence. http://dx.doi.org/10.4172/2161-0487.S3 - e002
2. Leventhal, Cameron, Linda, Howard (2003). The Self-regulation of Health and Illness Behaviour. American Psychological Associations: p. 17.
3. Surgenor L.J., Horn J., Hudson S.M., Lunt H., Tennent J. (2000). Metabolic control and psychological sense of control in women with diabetes mellitus. Alternative considerations of the relationship. *Journal of Psychosomatic Research*. 49: 267-273.
4. Macrodimitris S.D., Endler N.S. (2001). Coping, control, and adjustment in Type 2 diabetes. *Journal of Health Psychology*. 20: 208-216.
5. Renata P., Michael E. (2012). The Role of Psychosocial Factors in Wellbeing and Self-Care in Young Adults with Type 1 Diabetes. *International Journal of Diabetes Research*. 1(1): 1-6.
6. Glasgow R. E., Toobert D. J., Riddle M., Donnelly J., Mitchell D. L., Calder D. (1989). Diabetes-specific social learning variables and self-care behaviors among persons with type 2 diabetes. *Health Psychology*. 8: 285-303.
7. Wallston K. A., Wallston B. S. (1981). Health locus of control scales. In H.

Lefcourt (Ed.). *Research with the locus of control constructs*. New York. NY: Academic Press. 1: 189-243.
8. Morowatisharifabad M., Mazloomy M., Baghianimoghadam M., Rouhani T. (2009). Relationships between Locus of Control and Adherence to Diabetes Regimen. Journal of Research of Health Sciences. 9(1): 37-44.
9. Jessie A. Fontanella. (2013). Diabetes treatment adherence: Role of working alliance, locus of control, and social-cognitive factors; ETD Collection for Fordham University. http://fordham.bepress.com/dissertations/AAI3558158
10. Gopal Krishnan Sripriya (2014). Health Locus of Control and Compliance in Diabetic Patients. *International Journal of Nursing Care*. 2(2): 120-123.

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